

IBM InfoSphere Master Data Management Collaboration
Server
Version 11 Release 3

Migration Guide



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Note

Before you use this information and the product that it supports, read the information in “Notices and trademarks” on page 49.

Edition Notice

This edition applies to version 11.3.0 of IBM InfoSphere Master Data Management and to all subsequent releases and modifications until otherwise indicated in new editions.

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Preface

This information helps you to migrate from IBM® InfoSphere® Master Data Management Server for Product Information Management Version 9.1.0, and IBM InfoSphere Master Data Management Collaboration Server Versions 10.0.0, 10.1.0, and 11.0.0 to IBM InfoSphere Master Data Management Collaboration Server Version 11.3.0 through a number of substeps and migrations.

About this publication

The following information covers step-by-step instructions, best practices, performance tuning, and troubleshooting common issues.

Intended audience

This migration guide is intended for installers, system administrators, and IBM Professional Services personnel to successfully deploy the product in your environment.

Prerequisite and related information

Before using this migration guide, become familiar with the following information:

- InfoSphere MDM Collaboration Server knowledge center
- Your application server documentation
- Your database software documentation

How to send your comments

Your feedback is important in helping to provide the most accurate and high-quality information. If you have any comments about this book or any other InfoSphere MDM Collaboration Server documentation, use the following form to send us your comments:

<http://www.ibm.com/software/data/rcf/>

What's new in Version 11.3?

There are many new features and functions in IBM InfoSphere Master Data Management Collaboration Server Version 11.3.

InfoSphere MDM Collaboration Server is included in InfoSphere MDM Enterprise Edition and InfoSphere MDM Collaborative Edition.

InfoSphere MDM Collaboration Server enables companies to create a single, up-to-date repository of product information that can be used throughout their organization for strategic business initiatives.

Key changes to the product include:

Migration support for InfoSphere MDM Collaboration Server users

The following topics document the new migration paths from previous InfoSphere MDM Collaboration Server versions to v11.3:

- Migrating from V9.1.0 to V11.3
- Migrating from V10.0 to V11.3
- Migrating from V10.1 to V11.3
- Migrating from V11.0 to V11.3

Advanced Catalog Management (ACM) Enhancements

The enhancements for integrating with IBM WebSphere® Commerce include support for the following new features:

- Multiple stores including eSite Store, Direct Store, Catalog Asset Store
- Multiple catalogs including Master Catalog and Sales Catalogs
- Multiple values for descriptive attributes
- DescriptionOverride capability to provide Store specific descriptions
- CalculationCode capability for catalog entries and catalog groups
- Sequence attribute for catalog entries and catalog groups
- Search Engine Optimization (SEO) attributes for catalog entries and catalog groups
- Attribute Groups for grouping attributes in the Attribute Dictionary
- Additional facets for attributes in the Attribute Dictionary including Displayable, Facetable, Comparable, Sequence and so on.
- Multiple languages
- Customizable views for data entry screens

For more information, see IBM WebSphere Commerce

User Interface Enhancements

The InfoSphere MDM Collaboration Server user interface enhancements include the following changes:

- Define labels for multi-occurrence groups in the single edit screen
- Remove the legacy business user interfaces

Banking Solution Sample

The Banking Solution Sample is a set of assets that help banks address current issues with creating and selling their banking product offers using the collaborative MDM and the physical MDM. It consists of:

- A banking solution toolkit for publishing solution metadata (for example, Spec) and product data (for example, Category and Product) from the collaborative MDM and the physical MDM.
- A sample data model that is implemented in the collaborative MDM for banking product offer data management.

For more information, see Banking Solution Sample.

Watson Search

Watson Search that is powered by IBM Data Explorer 9.0:

- Static free text search bar available on all business screens.
- Ability to search items and their attributes across all catalogs.
- Detailed search results with descriptions and thumbnails.
- Ability to open a result for single edit or select multiple results for bulk edit.

Application and Stack Upgrade

The following new stack upgrades are supported by InfoSphere MDM Collaboration Server:

- Upgrade WebSphere Application Server to 8.5.5.2

- Add support for Oracle 12c
- DB2[®] ESE and Oracle for AIX[®] v7.1, RHEL v6, SOLARIS v10, SuSE v11 and Windows 10.5
- Enhance IBM Operational Decision Manager solution in Collaborative Edition to support Operational Decision Manager version 8.5.1
- Upgrade to use Dojo 1.9

Documentation Updates

The following items are new or are updates to the documentation:

- New topics and updated content in the Troubleshooting and support section.
- New topics and updated content in the Ensuring good performance section.

Contacting IBM Software Support

IBM Software Support provides assistance with product defects, answering FAQs, and performing rediscovery.

Before you begin

After trying to find your answer or solution by using other self-help options such as technotes, you can contact IBM Support. Before contacting IBM Support, your company must have an active IBM maintenance contract, and you must be authorized to submit problems to IBM. For information about the types of available support, see the Support portfolio topic in the *Software Support Handbook*.

When contacting IBM Software Support it is important to understand what support is available through IBM:

- Specific product questions: If you have been trained on the product, you can submit specific questions or concerns.
- Defect support: The analysis and necessary work required to resolve a product defect or provide a workaround.
- Script operations: For questions regarding a script operation or for reporting a possible defect with a script operation, you must simplify your question or problem to approximately 5 lines of code or less.
 - IBM does not provide support for debugging and analysis of custom scripts.
- Enhancement requests: Requests for new functionality added to the product.

Requests that are not within the scope of IBM Software Support and require you to contact either your Sales or Professional Services representative:

- Miscellaneous work: Work or assistance that requires extensive IBM involvement during installation or the implementation process which includes complex installations or installation across multiple platforms.
- Support for untrained customers: Requests for step by step IBM help but do not have the required IBM product training. IBM Education offers customer training if additional staff training is needed. Check the IBM website for specific information about available courses.
- Custom scripts or scripting: No support is provided for scripts that you have written or require debugging. All customized scripts written by Professional Services become owned and maintained by you, the customer, after Service's work has been completed. Technical Support is not available for writing or debugging custom scripts.

- Data recovery: We strongly advise you to routinely back up your data.
- Performance or tuning assistance or recommendations that require customer data.

Procedure

1. Determine if a technote already exists regarding your issue.
2. Determine whether a peer or your internal support team can provide assistance.
3. Define the problem, gather background information, and determine the severity of the problem. For help, see the “Before contacting IBM Software Support” in the *Software Support Handbook*.

Required background information

- All configuration settings and information.
 - The expected behavior versus what the current behavior is.
 - All changes or modification that you have recently implemented.
 - Determine if the issue can be recreated.
 - Define the steps that lead to the issues you are experiencing.
4. Gather your diagnostic information:
 - You can also use the IBM Support Assistant basic data collection feature to collect your critical log and configuration files, see www.ibm.com/software/support/isa/ for additional information.
 - Create your own IBM Support Assistant Lite collector tool through the workbench.
 - a. Download the product add-on in the IBM Support Assistant workbench.
 - b. Click **Collect and Send Data**. Three options display on the left.
 - c. Choose **...Using IBM Support Assistant Lite**.
 - d. Create the generated collector by completing each of the collector options:
 - Select a collector (if the installed product add-on does not display, it does not have a Must Gather document and cannot create an IBM Support Assistant Lite collector)
 - Specify the target directory
 - Specify the filename
 - Click the **Export** button
 - e. Transfer the exported IBM Support Assistant Lite collector to a remote system using ftp or any other available file transfer protocol.
 - f. Unzip the exported IBM Support Assistant Lite collector to your target location.
 - g. Setup JAVA_HOME or ensure that Java™ is in your path statement.
 - h. Run the **runISALite.bat** command for Windows or the **runISALite.sh** script for UNIX and LINUX from the tools IBM Support Assistant Lite directory on the remote system.
 - i. Provide the appropriate responses to any collection prompts.
 - j. Review the collected files or send them to IBM support.
 5. Submit your problem to IBM Software Support in one of the following ways:
 - Online: (Recommended)
 - a. Click **Open service request** given under the **Choose your task** section on the left-side navigation bar of the IBM InfoSphere Master Data Management Collaboration Server Support site.

- b. Click **ESR / SR** and follow the instructions provided on the ESR website. Use the following guidelines and tips for using ESR and submitting PMRs:
- Attach documents directly to the PMR to make them available to IBM Support Services.
 - ESR manages a list of all PMRs that you have viewed so that you have immediate access to them to check on their status.
 - Use ESR to set up automatic PMR notifications.
 - Send updates for PMR's that you open to IBM Support Services directly from ESR.
 - When submitting a PMR you must indicate a severity level in order to help us prioritize our resources with respect to other PMRs you open:

Severity 1

Critical business impact: This indicates that you are unable to use the program resulting in a critical impact on operations. This condition requires an immediate solution.

Note: Critical business impact typically means that your production system is down and in order for IBM Software Support to work outside of your business working hours, you must ensure that you have a contact available by phone 24x7 to facilitate inquiries by the investigating engineer, run tests in your production instance, etc.

Severity 2

Significant business impact: This indicates the program is usable but severely limited.

Severity 3

Some business impact: This indicates the program is usable with less significant features (not critical to operations) unavailable.

Severity 4

Minimal business impact: This indicates the problem causes little impact on operations or that a reasonable circumvention to the problem has been implemented.

- To open an Enhancement Request (a request for new general product functionality and is not related to a specific customization):
 - Open a PMR with severity 2, 3, or 4, (depending of the potential business gain of the request) and the request is sent to IBM Product Management for review. You will receive an Enhancement Request number for tracking purposes, which replaces the PMR number. Typically, your approval is required to close the PMR.
- By phone: For the phone number to call in your country, go to the Contacts page of the *Software Support Handbook*.

What to do next

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround that you can implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the

IBM Support website daily, so that other users who experience the same problem can benefit from the same resolution.

Chapter 1. Migrating

If you are using an earlier version of IBM InfoSphere Master Data Management Collaboration Server, you can migrate from your version to the most current version.

This installation information is also available in the InfoSphere MDM Collaboration Server Migration Guide, which is available in book format in a PDF file. Right-click on the link, and select **Save Target As** to download the PDF file to your computer.

Chapter 2. Get started

You must modify the database schema of your current installation by using migration scripts for migrating from prior versions to IBM InfoSphere Master Data Management Collaboration Server Version 11.3.

You must have adequate permissions to create and modify tables, and indexes in the database. You must also have adequate permissions to create and delete files in the subdirectories of the \$TOP directory.

Migration involves the following basic steps:

- Verify that enough database table space is available.
- Stop the instance that is using the database schema.
- Back up the existing database schema.
- Install InfoSphere MDM Collaboration Server V11.3 and point to the same database schema that the earlier instance was using.
- Run the appropriate migration script to modify the database schema and bring it to the InfoSphere MDM Collaboration Server V11.3 level.

Chapter 3. Migrating from prior versions

You can migrate to IBM InfoSphere Master Data Management Collaboration Server Version 11.3.0 from specific prior versions.

The following migration paths are supported for Version 11.3.0:

- Migrating from V9.1.0, Fix Pack 2 or later to V11.3.0.
- Migrating from V10.0.0, Fix Pack 1 or later to V11.3.0.
- Migrating from V10.1.0, GA and Fix Pack 1 - 8 to V11.3.0.
- Migrating from V11.0.0, GA and Fix Pack 1, 2, and 3 to V11.3.0.

If you are migrating to a higher release, not a fix pack of the same release, you must use a new installation directory to avoid JAR file version mismatches.

If you are migrating from an older fix pack version, ensure that you are not using any deleted APIs in your Excel scripts. The following APIs are not available in the latest POI JAR file:

- `public String getExcelCellEncoding();`
- `public void setEncoding(String encoding);`
- `public String getExcelCellEncoding(Object cellObj) throws AustinException;`

Note:

1. The InfoSphere MDM Collaboration Server Excel Parser is supported through a third-party .jar file named `poi-3.7-20101029.jar`. This library supports Microsoft Excel 2007 format, which allows more than 255 columns per data sheet. You must run the Rich Search Result Report script. When you run this script, use the Default Rich Search Results Report Script (Excel 2007 - .xlsx format) option to export items with more than 255 attributes.
2. You can export Rich Search Results to files in the **Excel 2003** format by using the Default Rich Search Results Report Script option. However, with this format, the report fails if items have more than 255 attributes.
3. Excel 2010 .xlsx is not supported by this JAR.

Important: Before you run the migration scripts, you must ensure that you are using the correct database version. See the system requirements for details: http://www-01.ibm.com/software/data/infosphere/mdm_server_pim/requirements.html and <http://www-01.ibm.com/support/docview.wss?uid=swg27035486> depending on your product version. You must also ensure that the InfoSphere MDM Collaboration Server database user has appropriate privileges as mentioned in the installation guide. Consult with your DBA team for any changes in database user privileges because of any security policy.

You must use the DB2 or Oracle database version as mentioned in the system requirements. See the system requirements for details: http://www-01.ibm.com/software/data/infosphere/mdm_server_pim/requirements.html and <http://www-01.ibm.com/support/docview.wss?uid=swg27035486> depending on your product version. You can refer to the DB2 or Oracle documentation for upgrading your DB2 and Oracle database to the supported version.

Steps for migrating collaborative MDM with custom table spaces are used in DB2 and Oracle

If you are using custom table space names instead of the default USERS or INDX, you must manually modify the table space names in following SQL files before you start the migration to InfoSphere MDM Collaboration Server.

You must verify that you have at least 30% free space in the database before you start the migration.

Audit logs are not migrated to V11.3.0. Because of a new format of audit log descriptions that were introduced in V9.1.0, the audit log descriptions present in releases before V9.1.0 are not viewable in V11.3.0. Hence they are deleted from the database during migration. The old audit logs can be viewed by using the release from which you are migrating.

You must manually perform the following steps to ensure successful migration:

1. Manually migrate the following property files. Because property files are part of the local file systems, the migration method does not support exporting property files. Modify each customized property from previous releases to the corresponding file in the new version. Do not overwrite the property files from an older version to a new version because new parameters are introduced in V11.3.0. Refer to the InfoSphere MDM Collaboration Server documentation for details on each property file.
 - \$TOP/etc/default/common.properties
 - \$TOP/etc/default/logs.xml
 - \$TOP/etc/default/docstore_mount.xml
 - \$TOP/etc/default/user_jars.list
2. Manually copy the contents of the \$TOP/public_html/suppliers/<cmp code>/ctg_files directory to the new instance for each company. Because these files are part of the local file system, the migration method does not support exporting the ctg_files directory.
3. Manually add the required user JAR files to the new instance. Because these files are part of the local file system, the migration method does not support exporting user JAR files. For more information about adding JAR files to your deployment, see Deploying a custom user .jar file.
4. Manually redo any changes that you had made to the Default Rich Search Results Report Script to customize it. Migrating to InfoSphere MDM Collaboration Server V11.3.0 overwrites the existing script available in the InfoSphere MDM Collaboration Server docstore directory,/scripts/report. This script is used for exporting InfoSphere MDM Collaboration Server object search results to an Excel sheet. For more information about this script, see Exporting search results to Excel.
5. Ensure that there is no verbose compilation option that is set for compiling scripts. Verify that in the common.properties file you do not use *verbose* as the value for the **script_compiler_options** parameter. For more information about this parameter, see script_compiler_options parameters.
6. Run the setup.sh script to check if the version of PERL installed on your computer is compatible with the version of InfoSphere MDM Collaboration Server that you have installed. This script is in the \$TOP directory. If the current version of PERL is not compatible, you must install a new version.

7. If you install the new version of InfoSphere MDM Collaboration Server in a new directory, you must update the value of TOP and PERL5LIB variables in the .bash_profile file. You must set the PERL5LIB variable to \$TOP/bin/perl5lib directory.

Migrating master data from internal format to XML format

You must convert master data to XML when migrating from IBM InfoSphere Master Data Management Server for Product Information Management Versions 6.0.0 or 9.0.0 to IBM InfoSphere Master Data Management Collaboration Server Version 11.3.

Before you begin

1. Create XML table spaces and buffer pools as described in the installation guide.
2. Ensure that the database user for InfoSphere MDM Collaboration Server application has appropriate database privileges as mentioned in the installation guide.
3. Stop the InfoSphere MDM Collaboration Server application on the local server.
4. Run the delete_old_versions.sh script to delete all the old versions. Use your company code and the current date as values for the **code** and **end_date** parameters.
5. Optional - Enhance memory available to the Java process: Running the data conversion script is a memory intensive process. It is recommended to provide 2 GB of memory to the Java process by updating the **custom_java_options** parameter in the \$TOP/bin/conf/env_settings.ini file. Run the configureEnv.sh after you modify the **custom_java_options** parameter to ensure that the updated new memory settings come into effect.

```
custom_java_options=-Xmx2048m -Xms256m
```

About this task

The data migration script requires twice the number of DB connections than the number of execution threads. For example, if you use 10 threads in the command-prompt option, then it requires 20 DB connections. You must configure the number of DB connections by using these two configuration parameters:

- **db_maxConnection**
- **db_maxConnection_default**

Both the parameters are available in the common.properties file. If the values of these parameters are already equal to or greater than the required DB connections, then you do not need to change the values. If the values of these parameters are less than the required DB connections, then you must increase the values to improve speed.

If you have more the 100,000 master data entries in the catalogs, increase the number threads. For example, you can use 50 or 100 threads to complete data migration faster. The highest number of threads you can use depends on the following variables in InfoSphere MDM Collaboration Server. You can evaluate the optimum number of threads by running the migration script in a test environment.

- Number of processor cores available
- Number of specs defined
- Available memory

All the specs that are defined in the InfoSphere MDM Collaboration Server environment are retrieved and used in the data conversion process. If you have more than 100 specs, update the spec caching parameters to appropriate values to prevent frequent database trips and improve overall script performance.

Procedure

1. Get the spec count in InfoSphere MDM Collaboration Server by using the following command.
2. Update these parameters with the values retrieved from the query in Step 1. These parameters are available in the `mdm-cache-config.properties` file in the `$TOP/etc/default` directory.

```
$PERL5LIB/runSQL.pl --sql_command="select count(*) from spc;"
```

```
specCache_KEY_START_VERSION_TO_VALUE.maxElementsInMemory=<spec count>
specCache_KEY_TO_CURRENT_START_VERSION.maxElementsInMemory=<spec count>
specCache_KEY_VERSION_TO_START_VERSION.maxElementsInMemory=<spec count>
```

Note: Running the `configureEnv.sh` script after you update the `mdm-cache-config.properties` file overwrites the parameters with default values.

3. Run the data migration shell script, `migrateDataToXml.sh`. This file is in the `$TOP/bin/migration` directory.

```
migrateDataToXml.sh --company=<company name> --threads=<number of threads>
```

Where

--company

Specifies the company code that is used to log on to InfoSphere MDM Collaboration Server.

--threads

Specifies the number of threads. Use a larger number of threads to improve speed but ensure that enough DB connections exist. The default is 1. It is recommended to provide at least 10 threads.

For example,

```
migrateDataToXml.sh --company=ibm --threads=50
```

What to do next

You can verify that the script worked as intended by observing the errors that are displayed in the console and logged in the `default.log` file in the `$TOP/logs/default` directory. A list of entries that failed to migrate are displayed at the end of execution.

The data migration script updates the database in batches. If there is an error, the entire batch is rolled back. Hence the number of entries that failed to migrate is more than the actual failures. Update the **`index_regeneration_batch_size`** parameter value to 1 in the `common.properties` file, then run the data migration script again to narrow down the entries with actual failures. A table of possible reasons for errors during data migration and recommended actions is given:

Table 1. Possible reasons for errors and recommended actions

Reasons for error during data migration	Recommended action
Data migration displays the following error: java.sql.SQLException: ORA-00600: internal error code, arguments: [KGHALP1], [0x00000000], [], [], [], [], [], [], [], [], [], []	Ensure that you are using the correct patch level for the database. If required, upgrade the database then run the data migration script again.
Data migration displays the following error: java.sql.SQLException: ORA-31061: XDB error: XML event error ORA-19202: Error occurred in XML processing In line 46 of orastream: LPX-00241: entity reference is not well formed	One of the attribute values in the entry has the "&" character or an invalid value. Update the entry to remove the invalid value from the item edit interface of InfoSphere MDM Collaboration Server and then attempt data migration again.

Migrating from V9.1.0 to V11.3.0

To migrate to IBM InfoSphere Master Data Management Collaboration Server Version 11.3.0 from IBM InfoSphere Master Data Management Server for Product Information Management Version 9.1.0, you must run the appropriate migration script.

Before you begin

Before you can migrate from InfoSphere MDM Server for PIM V9.1.0 to InfoSphere MDM Collaboration Server V11.3.0, you must ensure that you are specifically using Fix Pack 2 or later fix packs for V9.1.0. If you are using V9.1.0 with any other level of fix pack, you must migrate to V9.1.0 Fix Pack 2 or later fix packs. Complete the instructions in the appropriate release notes.

You must also ensure that all XML-related table spaces are created as described in the installation guide. Ensure that the InfoSphere MDM Collaboration Server database user has appropriate privileges to use the new table spaces.

You can configure the error log file location by modifying the `_ERROR_LOGS` variable in the `migrateFrom910.sh` migration script. This variable is set to `$TOP/logs/errfile.log` by default.

If you are using custom table space names instead of the default `USERS` or `INDX`, you must manually modify the table space names in the following SQL files. This modification must happen before you start the migration to InfoSphere MDM Collaboration Server V11.3.0.

Table 2. SQL files to modify when you use custom table space names

SQL files to modify when DB2 is the back-end database	SQL files to modify when Oracle is the back-end database
<p>Modify the table space names from USERS, INDX, and BLOB_TBL_DATA to appropriate custom table space names in the following SQL files in the \$TOP/src/db/schema/dbscripts/db2 directory:</p> <p>addSstShared.sql addCaeStepEntryDate.sql addObhCompanyId.sql</p>	<p>Modify the table space names from USERS, INDX, and BLOB_TBL_DATA to appropriate custom table space names in the following SQL files in the \$TOP/src/db/schema/dbscripts/oracle directory:</p> <p>addSstShared.sql add_icm_index.sql add_lot_index.sql redefine_ctg_indexes.sql modifyIcm1Index.sql</p>

About this task

The following steps are the only way to migrate from InfoSphere MDM Server for PIM V9.1.0 to InfoSphere MDM Collaboration Server V11.3.0, and no other means. You cannot use the environment export and import tool.

Procedure

1. Back up the existing database schema.
2. Install InfoSphere MDM Collaboration Server V11.3.0 in a different directory.
3. Set up your database.
 - a. For DB2 databases, create new buffer pools and table spaces as mentioned in Setting up your DB2 database in the installation guide.

Note: The size of the XML_DATA table space must be equal to the space occupied by the TCTG_ITD_ITEM_DETAIL table space. You can find the approximate size of the table by using the following query:

```
select (fpages * 16) / 1024 megabytes from syscat.tables
where tabschema = current schema
and tabname like 'TCTG_ITD_ITEM_DETAIL';
```

- b. For Oracle databases, create new table spaces and then install Oracle XML DB component as mentioned in Setting up your Oracle database in the installation guide.
4. Point the InfoSphere MDM Collaboration Server V11.3.0 instance to the V9.1.0, Fix Pack 2 or later database schema. To point the instance to the database, add the database parameters in the env_settings.ini file. For more information, see Setting the common database parameters.
 5. Run the migrateFrom910FP.sh migration script. This script is available in the \$TOP/bin/migration directory. See the Results section for the migration summary. If the migration was not successful, you can run the migration script again.
 6. Migrate your data as mentioned in Migrating master data from internal format to XML format.
 7. Run the test_db.sh script to verify the database schema, the connectivity between InfoSphere MDM Collaboration Server and databases, and to check for JDBC and native client connections. For more information, see test_db.sh script.
 8. Start the InfoSphere MDM Collaboration Server V11.3.0 instance.

Results

All messages, such as the status of individual migration components and the overall migration summary, are displayed in the console.

After you run the migration script, messages are displayed in the console that indicates whether the migration succeeded or failed.

This message is displayed if the migration succeeded:

```
-----  
Summary of the migration  
-----  
Migration to IBM InfoSphere Master Data Management  
Collaboration Server Version 11.3.0 is complete. Check the  
messages for any errors.  
  
Generating database verification report...
```

Changed tables

```
=====  
There are no changed tables
```

Missing Tables

```
=====  
There are no missing tables
```

Changed Indexes

```
=====  
There are no changed indexes
```

Missing Indexes

```
=====  
There are no missing indexes
```

LOG FILE: \$TOP/logs/default/default.log

This message is displayed if the migration failed:

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
Migration Failed : xxxx  
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
Please see the file for further details : /home/pimuser/mdmcs11/logs/errfile.log
```

This message is displayed if the migration of specific modules failed:

Summary of the migration

Migration of the following modules failed :
<module names>

This message is displayed if there is a discrepancy in database tables or indexes.
Generating database verification report...

Changed tables

=====
<table names>

Missing Tables

=====
<table names>

Changed Indexes

=====
<index names>

Missing Indexes

=====
<index names>

LOG FILE: \$TOP/logs/default/default.log

Review the errfile.log file for more messages. For SQL errors, find the detailed error message from the SQL error code, correct the error, and run the migration script again. For recommended action on migration failures, refer to Troubleshooting migration issues. Contact IBM Software Support if the problem persists after you rectify the errors.

Migrating from V10.0.0 to V11.3.0

To migrate to IBM InfoSphere Master Data Management Collaboration Server Version 11.3.0 from IBM InfoSphere Master Data Management Server for Product Information Management Version 10.0.0, you must run the appropriate migration script.

Before you begin

Before you can migrate from InfoSphere MDM Collaboration Server V10.0.0 to V11.3.0, you must ensure that you are specifically using Fix Pack 1 or later for

V10.0.0. If you are using V10.0.0 GA, you must migrate to V10.0.0 Fix Pack 1 or later following the instructions in the appropriate release notes.

You can configure the error log file location by modifying the `_ERROR_LOGS` variable in the `migrateFrom1000.sh` migration script. This variable is set to `$TOP/logs/errfile.log` by default.

If you are using custom table space names instead of the default `USERS` or `INDX`, you must manually modify the table space names in the following SQL files before you start the migration to InfoSphere MDM Collaboration Server.

Table 3. SQL files to modify when you use custom table space names

SQL files to modify when DB2 is the back-end database	SQL files to modify when Oracle is the back-end database
Modify the table space names from <code>USERS</code> , <code>INDX</code> , and <code>BLOB_TBL_DATA</code> to appropriate custom table space names in the following SQL files in the <code>\$TOP/src/db/schema/dbscripts/db2</code> directory: <code>addSstShared.sql</code> <code>addCaeStepEntryDate</code> <code>addObhCompanyId.sql</code>	Modify the table space names from <code>USERS</code> , <code>INDX</code> , and <code>BLOB_TBL_DATA</code> to appropriate custom table space names in the following SQL files in the <code>\$TOP/src/db/schema/dbscripts/oracle</code> directory: <code>addSstShared.sql</code> <code>add_icm_index.sql</code> <code>add_lot_index.sql</code> <code>redefine_ctg_indexes.sql</code> <code>modifyIcm1Index.sql</code>

About this task

The following steps are the only way to migrate from InfoSphere MDM Collaboration Server V10.0.0 to V11.3.0, and no other means. You cannot use the environment export and import tool.

Procedure

1. Back up the existing database schema.
2. Install InfoSphere MDM Collaboration Server V11.3.0 into a different directory.
3. Point the InfoSphere MDM Collaboration Server V11.3.0 instance to the V10.0.0, Fix Pack 1 or later database schema. To point the instance to the database, add the database parameters in the `env_settings.ini` file. For more information, see *Setting the common database parameters*.
4. Run the `migrateFrom1000FP.sh` migration script. This script is available in the `$TOP/bin/migration` directory. See the Results section for the migration summary. If the migration was not successful, you can run the migration script again.
5. Run the `test_db.sh` script to verify the database schema, the connectivity between InfoSphere MDM Collaboration Server and databases, and to check for JDBC and native client connections. For more information, see `test_db.sh` script.
6. Start the InfoSphere MDM Collaboration Server V11.3.0 instance.

Results

All messages, such as the status of individual migration components and the overall migration summary, are displayed in the console.

After you run the migration script, messages are displayed in the console that indicates whether the migration succeeded or failed.

This message is displayed if the migration succeeded:

```
-----  
Summary of the migration  
-----  
Migration to IBM InfoSphere Master Data Management  
Collaboration Server Version 11.3.0 is complete. Check the  
messages for any errors.  
  
Generating database verification report...
```

Changed tables

```
=====  
There are no changed tables
```

Missing Tables

```
=====  
There are no missing tables
```

Changed Indexes

```
=====  
There are no changed indexes
```

Missing Indexes

```
=====  
There are no missing indexes
```

LOG FILE: \$TOP/logs/default/default.log

This message is displayed if the migration failed:

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
Migration Failed : xxxx  
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
Please see the file for further details : /home/pimuser/mdmcs11/logs/errfile.log
```

This message is displayed if the migration of specific modules failed:

```
-----  
Summary of the migration  
-----  
Migration of the following modules failed :  
<module names>
```

This message is displayed if there is a discrepancy in database tables or indexes.

Generating database verification report...

Changed tables

=====
<table names>

Missing Tables

=====
<table names>

Changed Indexes

=====
<index names>

Missing Indexes

=====
<index names>

LOG FILE: \$TOP/logs/default/default.log

Review the errfile.log file for more messages. For SQL errors, find the detailed error message from the SQL error code, correct the error, and run the migration script again. For recommended action on migration failures, refer to Troubleshooting migration issues. Contact IBM Software Support if the problem persists after you rectify the errors.

Migrating from V10.1.0 to V11.3.0

To migrate to IBM InfoSphere Master Data Management Collaboration Server Version 11.3.0 from IBM InfoSphere Master Data Management Collaboration Server Version 10.1.0, you must run the appropriate migration script.

Before you begin

If you are using custom table space names instead of the default USERS or INDX, you must manually modify the table space names in the following SQL files. You must modify the names before you start the migration to InfoSphere MDM Collaboration Server Version 11.3.0.

Table 4. SQL files to modify when you use custom table space names

SQL files to modify when DB2 is the back-end database	SQL files to modify when Oracle is the back-end database
<p>Modify the table space names from USERS, INDX, and BLOB_TBL_DATA to appropriate custom table space names in the following SQL files in the \$TOP/src/db/schema/dbscripts/db2 directory:</p> <p>addSstShared.sql addCaeStepEntryDate.sql addObhCompanyId.sql</p>	<p>Modify the table space names from USERS, INDX, and BLOB_TBL_DATA to appropriate custom table space names in the following SQL files in the \$TOP/src/db/schema/dbscripts/oracle directory:</p> <p>addSstShared.sql add_icm_index.sql add_lot_index.sql redefine_ctg_indexes.sql modifyIcm1Index.sql</p>

About this task

You can migrate to InfoSphere MDM Collaboration Server Version 11.3.0 from InfoSphere MDM Collaboration Server Version 10.1.0 GA or any level of fix pack 1 - 8.

The following steps are the only way to migrate from InfoSphere MDM Collaboration Server V10.1.0 to V11.3.0, and no other means. You cannot use the environment export and import tool.

You can configure the error log file location by modifying the `_ERROR_LOGS` variable in the `migrateFrom1010.sh` migration script. This variable is set to `$TOP/logs/errfile.log` by default.

Procedure

1. Back up the existing database schema.
2. Install InfoSphere MDM Collaboration Server V11.3.0 into a different directory.
3. Point the InfoSphere MDM Collaboration Server V11.3.0 instance to the V10.1.0 database schema. To point the instance to the database, add the database parameters in the `env_settings.ini` file. For more information, see *Setting the common database parameters*.
4. Run the `migrateFrom1010FP.sh` migration script. This script is available in the `$TOP/bin/migration` directory. See the Results section for the migration summary. If the migration was not successful, you can run the migration script again.
5. Run the `test_db.sh` script to verify the database schema, the connectivity between InfoSphere MDM Collaboration Server and databases, and to check for JDBC and native client connections. For more information, see `test_db.sh` script.
6. Start the InfoSphere MDM Collaboration Server V11.3.0 instance.

Results

All messages, such as the status of individual migration components and the overall migration summary, are displayed in the console.

After you run the migration script, messages are displayed in the console that indicates whether the migration succeeded or failed.

This message is displayed if the migration succeeded:

Summary of the migration

Migration to IBM InfoSphere Master Data Management
Collaboration Server Version 11.3.0 is complete. Check the
messages for any errors.

Generating database verification report...

Changed tables

There are no changed tables

Missing Tables

There are no missing tables

Changed Indexes

There are no changed indexes

Missing Indexes

There are no missing indexes

LOG FILE: \$TOP/logs/default/default.log

This message is displayed if the migration failed:

!!

Migration Failed : xxxx

!!

Please see the file for further details : /home/pimuser/mdmcs11/logs/errfile.log

This message is displayed if the migration of specific modules failed:

Summary of the migration

Migration of the following modules failed :

<module names>

This message is displayed if there is a discrepancy in database tables or indexes.

Generating database verification report...

Changed tables

```
=====
<table names>
```

Missing Tables

```
=====
<table names>
```

Changed Indexes

```
=====
<index names>
```

Missing Indexes

```
=====
<index names>
```

LOG FILE: \$TOP/logs/default/default.log

Review the errfile.log file for more messages. For SQL errors, find the detailed error message from the SQL error code, correct the error, and run the migration script again. For recommended action on migration failures, refer to Troubleshooting migration issues. Contact IBM Software Support if the problem persists after you rectify the errors.

Migrating from V11.0.0 to V11.3.0

To migrate to IBM InfoSphere Master Data Management Collaboration Server Version 11.3.0 from IBM InfoSphere Master Data Management Collaboration Server Version 11.0.0, you must run the appropriate migration script.

Before you begin

If you are using custom table space names instead of the default USERS or INDX, you must manually modify the table space names in the following SQL files. You must modify the names before you start the migration to InfoSphere MDM Collaboration Server Version 11.3.0.

Table 5. SQL files to modify when you use custom table space names

SQL files to modify when DB2 is the back-end database	SQL files to modify when Oracle is the back-end database
<p>Modify the table space names from USERS, INDX, and BLOB_TBL_DATA to appropriate custom table space names in the following SQL files in the \$TOP/src/db/schema/dbscripts/db2 directory:</p> <p>addSstShared.sql addCaeStepEntryDate.sql addObhCompanyId.sql</p>	<p>Modify the table space names from USERS, INDX, and BLOB_TBL_DATA to appropriate custom table space names in the following SQL files in the \$TOP/src/db/schema/dbscripts/oracle directory:</p> <p>addSstShared.sql add_icm_index.sql add_lot_index.sql redefine_ctg_indexes.sql modifyIcm1Index.sql</p>

About this task

You can migrate to InfoSphere MDM Collaboration Server Version 11.3.0 from InfoSphere MDM Collaboration Server Version 11.0.0 GA, Fix Pack 1, Fix Pack 2, or Fix Pack 3.

The following steps are the only way to migrate from InfoSphere MDM Collaboration Server V11.0.0 to V11.3.0, and no other means. You cannot use the environment export and import tool.

You can configure the error log file location by modifying the `_ERROR_LOGS` variable in the `migrateFrom1100.sh` migration script. This variable is set to `$TOP/logs/errfile.log` by default.

Procedure

1. Stop the running InfoSphere MDM Collaboration Server V11.0.0 instance.
2. Back up the existing database schema.
3. Install InfoSphere MDM Collaboration Server V11.3.0 into a different directory.
4. Point the InfoSphere MDM Collaboration Server V11.3.0 instance to the V11.0.0 database schema. To point the instance to the database, add the database parameters in the `env_settings.ini` file. For more information, see [Setting the common database parameters](#).
5. Run the `migrateFrom1100FP.sh` migration script. This script is available in the `$TOP/bin/migration` directory. See the [Results](#) section for the migration summary. If the migration was not successful, you can run the migration script again.
6. Run the `test_db.sh` script to verify the database schema, the connectivity between InfoSphere MDM Collaboration Server and databases, and to check for JDBC and native client connections. For more information, see `test_db.sh` script.
7. Start the InfoSphere MDM Collaboration Server V11.3.0 instance.

Results

All messages, such as the status of individual migration components and the overall migration summary, are displayed in the console.

After you run the migration script, messages are displayed in the console that indicates whether the migration succeeded or failed.

This message is displayed if the migration succeeded:

```
-----  
Summary of the migration  
-----  
Migration to IBM InfoSphere Master Data Management  
Collaboration Server Version 11.3.0 is complete. Check the  
messages for any errors.  
  
Generating database verification report...
```

Changed tables

```
=====
```

There are no changed tables

Missing Tables

```
=====
```

There are no missing tables

Changed Indexes

```
=====
```

There are no changed indexes

Missing Indexes

```
=====
```

There are no missing indexes

LOG FILE: \$TOP/logs/default/default.log

This message is displayed if the migration failed:

```
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
Migration Failed : xxxx  
!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!  
Please see the file for further details : /home/pimuser/mdmcs11/logs/errfile.log
```

This message is displayed if the migration of specific modules failed:

```
-----  
Summary of the migration  
-----  
Migration of the following modules failed :  
<module names>
```

This message is displayed if there is a discrepancy in database tables or indexes.
Generating database verification report...

Changed tables

=====
<table names>

Missing Tables

=====
<table names>

Changed Indexes

=====
<index names>

Missing Indexes

=====
<index names>

LOG FILE: \$TOP/logs/default/default.log

Review the errfile.log file for more messages. For SQL errors, find the detailed error message from the SQL error code, correct the error, and run the migration script again. For recommended action on migration failures, refer to Troubleshooting migration issues. Contact IBM Software Support if the problem persists after you rectify the errors.

Chapter 4. Migrating InfoSphere MDM Collaboration Server scripts

You can use scripts to perform several functions within IBM InfoSphere Master Data Management Collaboration Server. Scripts provide a high degree of flexibility without compromising on efficiency of operation or ease of development.

Script differences in various versions

The base version that is used for IBM InfoSphere Master Data Management Collaboration Server Version 11.3 is WebSphere Product Center Version 5.0.1; therefore there are functional and behavioral differences between V5.2.1 and V11.3.

Attributes of data type *Flag* return different values in V11.3. In V5.2.1, the *Flag* data type returned a string TRUE/FALSE. In V11.3 the *Flag* data type returns an equivalent of a Java Boolean value, which can have the values true/false/null. Therefore, when you compare a flag attribute, the comparison should be as follows:

```
if (flagValue==null)
```

If the value of a *Flag* is printed, for example, `out.write(flagValue);`, the values that are printed might be null, false, or true.

Because the code is compiled into Java when you use *compiled_only_mode*, it throws an exception if IBM InfoSphere Master Data Management Collaboration Server scripts contain Java keywords as variables. Also, scripts do not compile if they contain variables that are already being used by InfoSphere MDM Collaboration Server in the generated code. For example, *logger* and *hmContext*.

Another key difference exists in the methods that return either an *ItemSet* or a *CategorySet*: In V5.2.1, if the method did not fetch any results, it returned *null*. In V5.3.2, and therefore in V11.3, these methods return an empty set

- Here are the methods that return an *ItemSet*:
 - `getCtgItemByAttributeValue(String sNodePath, String sValue)`
 - `getItemSetForCategory(Catalog ctg [, Boolean ordered])`
 - `getItemSetForCatalog()`
 - `getItemSetForUnassigned(CategoryTree ctr, boolean readOnly)`
 - `getItemSetForPrimaryKeys(Array pkeys, Boolean bOptimize)`
 - `getItemSetForSelection()`
 - `getSubset(IItemSet items, Integer start_point [, Integer end_point])`
- Here are the methods that return a *CategorySet*:
 - `getCategorySet([Boolean bReadOnly])`
 - `getDescendentCategorySetForCategory([Boolean bReadOnly])`
 - `getCategorySetByAttributeValue(String attribPath, Object attribValue, [Boolean bReadOnly])`
 - `getCategorySetByPrimaryKey(String primaryKey, [Boolean bReadOnly])`
 - `getCategorySetByLevel(Integer level, [Boolean bReadOnly])`
 - `getCategorySetByFullNamePath(String[] fullNamePaths, String delimiter)`

- getCategorySetByItemSecondarySpec(String specName)
- getCategorySetByStandAloneSpec(String specName)
- getLocationsAddedAvailability(CategoryTree locationHierarchy)
- getLocationsChangedToHaveData(CategoryTree locationHierarchy)
- getLocationsChangedToHaveNoData(CategoryTree locationHierarchy)
- getLocationsHavingChangedData(CategoryTree locationHierarchy)
- getAvailableLocations(Object locationOrCategoryTree)

Methods with different signatures in V6.0.0 and V11.3.0

The following table compares the script operations added to the IBM InfoSphere Master Data Management Collaboration Server V11.3.0 Scripting Library:

Methods with different signatures in IBM InfoSphere MDM Server for PIM V6.0.0 and InfoSphere MDM Collaboration Server V11.3.0.

Table 6. A comparison of the methods with different signatures in V6.0.0 and V11.3.0

V6.0.0 operations	V11.3.0 operations
String exportEnv(EnvObjectList envObjList, String sDocFilePath)	String exportEnv(EnvObjectList envObjList, String sDocFilePath, [String sMapFilePath])

Methods only in V9.0.0 carried forward to V11.3.0

The following methods are available only in IBM InfoSphere Master Data Management Collaboration Server V9.0.0 carried forward to V11.3.0.

- commitDB()
- new LinkHandler(String wfName)
- updateLinks(IEntrySet entrySet)
- New PathSelectionHandler(ICollaborationArea colArea)
- selectAndSetPath(IEntrySet entrySet,String propertyName)
- MultiMoveHandler(String wfName)
- moveEntries(IEntrySet entrySet,String stepPath)
- loadWF(String filePath)
- checkoutItem(String wfName, String itemID)
- checkoutCategory(String wfName, String categoryId,String categoryTreeName)
- new ChildCheckinHandler(String wfName)
- checkInChilds(IEntrySet entrySet, String stepPath)
- TIAttrVerifier(String wfName)
- verifyAttrGroupsAndSetExitValues(IEntrySet entrySet,String [] attrCollectionNames)
- new GDSXMLDocument(Doc doc/String str)
- getXMLNodeValue(Boolean bRequired)
- setXMLNodeValue(String sPath, String value)
- getGDSXMLNodeName()
- getXMLNodePath()
- getGDSXMLNode()
- addXMLNode(GDSXMLNode xmlNode [,String path])
- removeXMLNode(Object obj)

- `getXMLNode(String path)`
- `cloneXMLNode()`
- `setValue(String path, String value)`
- `getGDSXMLNodes(String path)`
- `removeAustinNodes(String path)`
- `getXMLString()`
- `getGDSXMLNodeFromXMLNode(XMLNode xmlnode)`
- `getNewPublicationMessageIds()`
- `getNewPublicationMessageIdsByType(String[] messageTypes)`
- `getPublicationMessageIdsByDate(String fromDate, String toDate [,String recipientGLN])`
- `MessageItemHandler(String messageId)`
- `getTradeItems()`
- `sendConfirmation(String confirmationType,String[] messageIds)`
- `getLinks()`
- `changeState()`
- `getHierarchyTree()`
- `getAssociatedLinks(String gtin, Boolean fetchChildLinks)`
- `getInternalCode()`
- `setNodeType(String nodeType)`
- `sendCICConfirmationReasonCodes(String confirmationType,String MsgId,HashMap hmCICReasonCodeData)`
- `new CICStatus(String confirmationStatusCode, String confirmationStatusCodeDescription, String languageISOCODE [,String additionalConfirmationStatusDescription] [,String correctiveAction] [,String expectedCorrectiveInformation])`
- `getParent(int index)`
- `getChild(int index)`
- `getNumberOfChildren()`
- `getNumberOfParents()`
- `getRootTradeItem()`
- `isLeaf()`
- `getLinkQuantity()`
- `createNotification(IBusinessObject iObj, String notfType, String userName)`
- `new TradeItemSS(String sGtin, String sGTINName, String sProductType, String sInternalCatCode, [String sDataPoolCatCode])`
- `getTradeItemSS(String sGTIN,String sTM,String sIP)`
- `setTradeItemAttributesSS(HashMap hmAttributePathsToValues)`
- `setTradeItemAttributeSS(String attributePath,String attributeValue)`
- `getTradeItemAttributeValueSS(String sAttrPath)`
- `toBoolean(String str)`
- `validateGTIN(String sGTIN)`
- `validateGLN(String sGLN)`
- `getGTINCategory(String sGTIN)`

- `getGTINTree(String sGTIN, String sProductType, Integer iLinkQuantity, String sLinkStatus)`
- `addChild(GTINTree tree)`
- `removeChild(String sGTIN)`
- `saveTradeItemSS()`
- `searchTradeItems(HashMap hmSearchParamsToValues)`
- `getTradeItemParentLinks()`
- `getTradeItemChildLinks()`
- `getModifiedTradeItems(String transactionType, Date startDate, Date endDate)`
- `getItems()`
- `setUDEXCategoryCode(String code)`
- `setInternalCategoryCode(String code)`
- `validateTradeItem()`
- `validateTradeItemAttribute(String sAttrPath)`
- `validateTradeItemAttributeGroup(String sAttributeGroup)`
- `new TradeItemDS(String sEANUCCCode, String sEANUCCCodeType, String sExtensionName, String sProductType, String sGPCCCode[,String sInternalCatCode ,String sGTIN ,String sGTINName])`
- `getExchangeSpecificAttribute()`
- `getTradeItemDS(String sEANUCCCode, String sTM, String sIP, [String sGTIN], [String recipientGLN])`
- `setTradeItemAttributesDS(HashMap hmAttributePathsToValues)`
- `setTradeItemAttributeDS(String attributePath, String attributeValue)`
- `getTradeItemAttributeValueDS(String sAttrPath)`
- `saveTradeItemDS()`
- `getAllTradeItemAttributes()`
- `searchTradeItemsDS(HashMap hmSearchParamsToValues)`
- `deleteTMIPVariant()`
- `deleteGTIN()`
- `isTradeItemCheckedOut()`
- `getWREExchangeSpecificAttribute()`
- `isWREInteroperablee()`
- `addItemSS(HashMap sEntryMap, String strDate)`
- `synchronizeItemChangesSS(HashMap sEntryMap, String strDate, String operationType)`
- `publishNewItemSS(HashMap sEntryMap, HashMap tradingPartners, String strDate, String operationType)`
- `sendInitialLoadSS(HashMap sEntryMap, HashMap tradingPartners, String strDate, String operationType)`
- `addItemLinksForMassTransactionsSS(HashMap sEntryMap, String strDate)`
- `getCtgItemAttribValues()`
- `readGDSPropertiesSS(String sPropkey)`
- `searchTradeItems(HashMap hmSearchParamsToValues, String start, String end)`
- `processMassTransaction(String massJobID, HashMap hmSearchParamsToValues)`
- `HashMap setMassImportSS(boolean bImport)`

- publishPublicationList(HashMap hmSearchParamsToValues)
- new TradeItemLink(String parentGTIN, String childGTIN [,Integer linkQuantity])
- setLinkAttributes(HashMap hmAttributeNameToValues [,String informationProvider])
- setLinkAttribute(String attributeName,String attributeValue [,String informationProvider])
- getTradeItemLink(String parentGTIN, String childGTIN)
- saveTradeItemLink()
- deleteTradeItemLink()
- getLinkAttributeValue(String sAttrName)
- getParentGTIN()
- getChildGTIN()
- new TradingPartner(String sGLN, String sPartnerName, String sCountry, String sGLNID, String itemType)
- new TradingPartner(String sGLN, String sPartnerName, String sCountry, String itemType)
- getTradingPartner(String sGLN)
- setPartnerAttributes(HashMap hmAttributePathsToValues)
- setPartnerAttribute(String attributePath,String attributeValue)
- saveTradingPartner()
- searchTradingPartners(HashMap hmSearchParamsToValues)
- getPartnerAttributeValue(String sAttrPath)
- createTransaction(IBusinessObject iObj, String txnType, String userName)
- isString()
- iterator()
- hasNext()
- next()
- isLangSpecificAttr(String sAttrPath)
- getGDSLanguages()
- flushGDSCache()
- new WREMessageHandler(String wfName)
- sendMessage(IEntrySet entrySet,String messageType[, List transactionVOList])
- new MessageValidationResult(String sMsgID, String sMessage)
- new TradeItemValidationResult(String sKey)
- new AttributeValidationResult(String sKey)
- new ValidationResultObject(String sRuleName)
- addValidationResult(ValidationResultObject refValidationResultObject, String sMessage, String sStatus, String sType, Object objHolder)
- addValidationResultObject(AbstractValidationResult refAbstractValidationResult, ValidationResultObject refValidationResultObject)
- addTradeItemValidationResult(MessageValidationResult refMessageValidationResult, TradeItemValidationResult refTradeItemValidationResult)

- addAttributeValidationResult(TradeItemValidationResult refTradeItemValidationResult,AttributeValidationResult refAttributeValidationResult)
- getValidationResultObjectList(AbstractValidationResult refAbstractValidationResult)
- getTradeItemValidationResultList(MessageValidationResult msgValidationResult)
- getAttributeValidationResultList(TradeItemValidationResult tradeItemValidationResult)
- setValidationResultStatus(boolean bStatus)
- getValidationResultStatus()
- setValidationResultMessage(String message)
- setLocalizedValidationResultMessage(String messageID [,String[] arguments])
- addLocalizedValidationResultMessage(String messageID [,String[] arguments])
- getValidationResultMessage()
- setValidationResultHolder(Object holder)
- getValidationResultHolder()
- setValidationResultType(String sType)
- getValidationResultType()
- getTradeItemsInMsgItemDS(Item msgItem)
- getValidationResult(AbstractValidationResult refAbstractValidationResult)
- getMessageTypeName(Item msgItem)
- getDataPoolNameForMsgItem(Item msgItem)
- new TransactionHandlerDS()
- insertTransactionDS(ICollaborationArea colArea,IEntrySet entrySet,String stepPathString,String trasactionType,String status,String stepTrasition)
- updateTransactionDS(ICollaborationArea colArea,IEntrySet entrySet,String stepPathString,String trasactionType,String status,String stepTrasition)
- new StatusUpdaterDS()
- updateTradeItemGlobalStatusDS(IEntrySet entrySet,String status)
- updateTradeItemLocalStatusDS(IEntrySet entrySet,String status)
- updateStatusDS(IEntrySet entrySet,String status)
- new NotificationHandlerDS(String wflName)
- notifyUsersForActionDS(IEntrySet entrySet,String action)
- notifyUsersForActionWithStatusDS(IEntrySet entrySet,String action)
- new InternalSynchHandler()
- synchronize(IEntrySet entrySet)
- new EnrichmentHandler()
- canStartEnrichment(IEntrySet entrySet)
- startEnrichment(IEntrySet entrySet)
- new InitialLoadSaver()
- saveInitLoadEntries(IEntrySet entrySet)
- new MessageValidator()
- checkInitLoadAndSetExitVal(IEntrySet entrySet)
- new CategoryMappingValidator()

- verifyAndSetExitValues(IEntrySet entrySet)
- getTransactionDetails(ICollaborationArea colArea,IEntrySet entrySet,String stepPathString,String trasactionType,String status,String stepTrasition)
- runWFTTest(String ar1,String arg2, String arg3)
- createTestData(String ar1,String arg2)
- GDSCreateMassPublicationItems(IEntrySet entrySet)
- GDSDeleteMassPublicationItems(IEntrySet entrySet)
- GDSCheckFilters(IEntrySet entrySet)
- LogInboundTransaction(IItem msgItem,String transactionType, String senderGLN, String msgFilePath)
- TransactionHandlerSS()
- insertTransactionSS(ICollaborationArea colArea,IEntrySet entrySet,String stepPathString,String trasactionType,String status,String stepTrasition)
- updateTransactionSS(ICollaborationArea colArea,IEntrySet entrySet,String stepPathString,String trasactionType,String status,String stepTrasition)
- new StatusUpdaterSS()
- updateStatusSS(IEntrySet entrySet,String status)
- updateTradeItemGlobalStatusSS(IEntrySet entrySet,String status)
- updateTradeItemLocalStatusSS(IEntrySet entrySet,String status)
- new NotificationHandlerSS(String wflName)
- notifyUsersForActionSS(IEntrySet entrySet,String action)
- notifyUsersForActionWithStatusSS(IEntrySet entrySet,String action,String status)
- invokeWorkflowSS(HashMap entryMap, String swfName)
- publishEntriesToSrcContainer (EntrySet entrySet)
- setLdapOperation (LdapOperation operation)
- setViewableAttributeGroups (String subViewType, String[]/AttrGroup[] attrGroups, [String locationHierarchyName])
- isItemAvailableInLocation (Category location)
- isBinary ()
- reset ()
- getCurrentLocation ()
- getEntryInStep (String stepPath)
- deleteLookupTable (LookupTable lkp)
- assertFalse (Boolean condition, [String message])
- getEntryAttribValues (String sAttribPath)
- getSearchTemplateName ()
- getLdapObjectClasses ()
- getCategoryParentsUsingCache (CategoryCache cat_cache)
- getCtgItemLocationAttribsForKeys (Category location, Object[] aAttribPath [, String sDelimiter])
- getAddedAttributePathsNewEntry ([Category location])
- getItemRootEntryNodesHavingLocationData ()
- getEntryChangedDataSinceLastSave ()
- getDate (int columnIndex)

- addLdapAttribute (LdapAttribute attribute)
- getLocationPathForInheritedValue (String delimiter)
- getModifyLocationHierarchyAvailability (String locationHierarchyName)
- makeItemAvailableInLocations (Category[] locations, [Boolean bRecursive])
- encodeUsingCharset (String charset)
- getLocationsAddedAvailability (CategoryTree locationHierarchy)
- getEntryRelationshipAttrib (String sAttribPath)
- new\$LdapObjectclass (String objclass)
- getWflStepView (String subViewType, [String locationHierarchyName])
- getLocationsChangedToHaveData (CategoryTree locationHierarchy)
- setLdapDistinguishedName (LdapAttribute dn)
- getLocation ()
- xmlDocToString ()
- getAvailableLocations (Object locationOrCategoryTree)
- writeFileUsingReader (Reader r)
- setEditableAttributeGroups (String subViewType, String[]/AttrGroup[] attrGroups, [String locationHierarchyName])
- getDynamicSelectionQueryString ()
- setActionModeToExport (String sActionMode)
- addLdapEntry (LdapEntry entry)
- getLdapOperation ()
- getCategory (int columnIndex)
- getHierarchy (int columnIndex)
- removeLocationSpecificData (CategoryTree ctr)
- parseDate (String value, String format[,Locale locale])
- new\$SearchQuery (String queryString)
- getStepsForEntry (Entry entry)
- getWsddDocPath ()
- setRequiredAttributeGroups (String subViewType, String[]/AttrGroup[] attrGroups, [String locationHierarchyName])
- getWflStepViews ()
- startExportByName (String sName)
- getErrorsForLocation ()
- getInt (int columnIndex)
- parseXMLNodeWithNameSpace (String sXMLSubPath)
- initializeKeyValueMapping (Object[] aKeyset)
- assertTrue (Boolean condition, [String message])
- getCtgItemAttribsForKeys (Object[] aAttribs [, String sDelimiter])
- getNodeDisplayName ([Locale locale])
- getLocationErrors ()
- getLdapEntries ()
- getRequiredAttributeGroups ([String subViewType], [String locationHierarchyName])
- getEntryChangedData (Entry oldEntry, Entry newEntry)
- getLocaleNode (Locale locale)

- locationHasData (Category location)
- execute ()
- makeItemUnavailableInLocations (Category[] locations, [Boolean bRecursive])
- getLdapAttributes ()
- assertNotNull (Object obj, [String message])
- getLocationsHavingChangedData (CategoryTree locationHierarchy)
- getLocationsHavingData (Object locationOrCategoryTree)
- getSpec (int columnIndex)
- getItemLocationAttrib (Category location, String sAttribPath)
- runQuery (String qryString)
- getLdapAttributeValue ()
- defineLocationSpecificData (CategoryTree ctr, Spec spc, AttrGroup[] inhAttrGrps)
- new\$SearchTemplate (String name, Array attrGroupNames, Container container, String desc, [String colAreaName, String stepPath])
- getBoolean (int columnIndex)
- setItemLocationData (Item item, CategoryTree locationTree, String[] locFullPaths, String delimiter, Boolean rootIncluded[, Boolean append])
- setImplclass (String implclass)
- isInheriting (Category location, String sAttribPath)
- new\$LdapEntry ()
- getLdapAttributeType ()
- setXMLNodeValue (String sPath, String value)
- parseLDIFFfile (String filename)
- dropEntry (Entry entry)
- new\$DynamicSelection (String selectionName, String queryString)
- makeItemAvailableInLocation (Category location, [Boolean bRecursive])
- getCategoryChildrenUsingCache (CategoryCache cat_cache)
- isDefined (int columnIndex)
- getEntryNodeType ()
- setAuthRequired (Boolean authRequired)
- flushScriptCache ()
- getLocationsRemovedAvailability (CategoryTree locationHierarchy)
- getScriptExecutionMode ()
- getModifiedAttributePathsOldEntry ([Category location])
- copySearchItemData (Item searchItem[, Boolean append])
- copySearchItemLocationTreeData (Item searchItem, CategoryTree locationTree[, Boolean append])
- createLDIFFfile (String docstore_filename, LdapEntrySet entrySet)
- getLong (int columnIndex)
- decodeUsingCharset (String charset)
- moveEntryToNextStep (Entry entry, String stepPath, String exitValue)
- isAuthRequired ()
- getSearchTemplateByName (String name)
- getItemRootEntryNodeForLocation (Category location)

- getViewableAttributeGroups ([String subViewType], [String locationHierarchyName])
- moveEntryToColArea (Entry entry, String destColAreaName)
- getCtgViewType ()
- getPossibleEntryNodeValues ()
- getItemUsingEntryRelationshipAttrib (String sAttribPath)
- javaArrayFromScriptArray (Array scriptArray, String type)
- getXMLNode (String nodePath)
- assertEquals (Object expectedValue, Object actualValue, [String message])
- addLdapObjectclass (LdapOperation objectClass)
- new\$LdapEntrySet ()
- setNodeIndexed (Boolean)
- isNodeIndexed ()
- getProductCenterURL - Returns the property trigo_web_url defined in the common.properties file, which holds the fully qualified URL, including port number, of the website where users point their browsers to access this instance of InfoSphere MDM Collaboration Server.
- assertNull (Object obj, [String message])
- setXMLNodeValues (String sPath, String[] values)
- setModifyLocationHierarchyAvailability (String locationHierarchyName, Boolean canModifyAvailability)
- getFlatEntryNodesOf (EntryNode en)
- checkOutEntry (Entry entry, [String stepPath], [boolean waitForStatus])
- getLocationHierarchyNames ([Boolean canModifyAvailability])
- getGlobalErrors ()
- getItem (int columnIndex)
- getModifiedAttributePathsNewEntry ([Category location])
- deleteCtgView (CtgView ctgView)
- getLocationsChangedToHaveNoData (CategoryTree locationHierarchy)
- new\$SearchSelection (Catalog catalog, String name)
- getDouble (int columnIndex)
- moveCursor (int position)
- getXMLNodes (String sPath)
- getLdapObjectclass ()
- new\$LdapAttribute (String attributeType, Object attributeValue [, Boolean isBinary, Boolean isExternal])
- getImplclass ()
- getAllUsers ()
- getEditableAttributeGroups ([String subViewType], [String locationHierarchyName])
- getXMLNodeValues (String nodePath [, Boolean bRequired])
- getFloat (int columnIndex)
- makeItemUnavailableInLocation (Category location, [Boolean bRecursive])
- deleteSearchTemplate ()
- getDeletedAttributePathsOldEntry ([Category location])
- isExternal ()

- `setInheriting` (Category location, String sAttribPath, [Boolean flag])
- `setWsddDocPath` (String wsddDocPath)
- `getString` (int columnIndex)
- `setItemLocationAttrib` (Category location, String sAttribPath, Object sValue)
- `scriptArrayFromJavaArray` (OneDimensionalJavaArray)
- `setEntryAttribValues` (String sAttribPath, Object[] sValues)
- `getLdapDistinguishedName` ()
- `executeInBackground` (String selectionName)
- `getLocationForErrors` ()
- `disableEntryValidation`(Entry collabAreaEntry, String workflowStepAtPath, Boolean disableValidation)
- `isEntryNew`()
- `item.getCtgItemRelatedItemInfo`()

Note:

- This script operation was deprecated in WebSphere Product Center V5.2.1
- This script operation is replaced with **`entry::getEntryRelationshipAttrib(string attribpath)`** in InfoSphere MDM Collaboration Server V9.0.0.

- `moveUserToOrganization`(Category srcOrg,Category dstOrg)
- `copyUserToOrganizations`(Category[] organizations)
- `removeUserFromOrganization`(Category organization)
- `invocationCacheGet`(String key)
- `invocationCachePut`(String key, Object value)
- `invocationCacheRemove`(String key)
- `invocationCacheClear`()
- `setDynamicSelectionQueryString`(String queryString)
- `getExactAttributePath`()
- `String ExcelCell::getExcelCellEncoding`()

Changes in script operations behavior that exist from V5.3.2 and V11.3.0

The following list provides the changes in behavior for script operations that exist in both WebSphere Product Center V5.3.2 and IBM InfoSphere Master Data Management Collaboration Server V11.3.0 Scripting Libraries.

setContainerProperties()

Behavior in V5.3.2.

- The properties that are specified in the PROPERTIES hashmap are set for the container in question.

Behavior in V11.3.0.

- The properties that are specified in the PROPERTIES hashmap are set for the container in question. Hashmap key "SCRIPT_NAME" is now deprecated and "POST_SCRIPT_NAME" should be used in its place.

getCategoryAttrib()

Behavior in V5.3.2.

- Returns the value of the attribute sAttribPath (spec_name/attribute_name) of this category.

Behavior in V11.3.0.

- Returns the value of the attribute sAttribPath (spec_name/attribute_name) of this category, only when the Attribute is included in the View or Attribute Collection, otherwise it returns null.

getEntryAttrib()

Behavior in V5.3.2.

- Returns the value of the attribute sAttribPath (spec_name/attribute_name) of this entry.

Behavior in V11.3.0.

- Returns the value of the attribute sAttribPath (spec_name/attribute_name) of this entry, only when the Attribute is included in the View or Attribute Collection, otherwise it returns null.

getCtgItemAttrib()

Behavior in V5.3.2.

- Returns the value of the attribute sAttribPath (spec_name/attribute_name) of this item.

Behavior in V11.3.0.

- Returns the value of the attribute sAttribPath (spec_name/attribute_name) of this item, only when the Attribute is included in the View or Attribute Collection, otherwise it returns null.

removeNode()

Behavior in V5.3.2.

- Returns Boolean.

Behavior in V11.3.0.

- Returns void.

setTypeToExport()

Behavior in V5.3.2.

- Sets the object type to be exported.

Behavior in V11.3.0.

- Sets the object type to be exported.
COLLABORATION_AREA_CONTENT, INHERITANCE_RULES removed from the list of acceptable values for sObjectType.

addObjectByNameToExport()

Behavior in V5.3.2.

- COLLABORATION_AREA_CONTENT is an acceptable value for sObjectType.

Behavior in V11.3.0.

- COLLABORATION_AREA_CONTENT is removed from the list of acceptable values for sObjectType.

addAllObjectsToExport()

Behavior in V5.3.2.

- COLLABORATION_AREA_CONTENT is an acceptable value for sObjectType.

Behavior in V11.3.0.

- COLLABORATION_AREA_CONTENT is removed from the list of acceptable values for sObjectType.

disableContainerProcessingOptions(String[] options)

Behavior in V5.3.2.

- Disable the specified processing options.

Behavior in V11.3.0.

- Disable the specified processing options. More possible values for the options parameter: ENTRY_BUILD_SCRIPT and UNIQUE_VALIDATION.

setEntryNodeValue()

Behavior in V5.3.2.

1. Creates a node if not present.
2. Returns the value, which was set.

Behavior in V11.3.0.

1. It produces an error if the node is not already present, you must create a new node by using entry.setEntryAttrib().
2. Returns 1/0/-1 based on the action taken (success, nothing has changed, error).

getEntryNode()

Behavior in V5.3.2.

1. Whenever a new item or category is created, one occurrence of MultiAttribute node is present by default.

```
itemNode.getEntryNode("/SpecForMigTest/Multi#0/Sub-Multi#0")
```

Returns the node.

2. If the path specified is not found, V5.3.2 creates it and returns the node. Returns null if path is not valid.

Behavior in V11.3.0.

1. V11.3.0 produces an error if the path is not already present.
2. V11.3.0 does not create a node.

setEntryNode()

Behavior in V5.3.2.

1. V5.3.2 creates it and returns the node, else returns null if path is not valid

Behavior in V11.3.0.

1. V11.3.0 produces an error if the path is not already present.

getEntryNodeChildren()

Behavior in V5.3.2.

1. V5.3.2 returns the actual children of grouping node.

```
itemNode = item.getRootEntryNode(); node = itemNode.setEntryNode("/SpecForMigTest/Multi");
```

Output:

```
SpecForMigTest/Multi/Sub-Multi
```

Behavior in V11.3.0.

1. V11.3.0 returns the occurrences of multiple and not the actual children for example

```
itemNode = item.getRootEntryNode(); node =  
itemNode.setEntryNode("/SpecForMigTest/Multi");
```

Output: /SpecForMigTest/Multi#0 /SpecForMigTest/Multi#1

getEntryNodes()

Behavior in V5.3.2.

1. V5.3.2 the children are also returned as the paths of children contains the path that is specified in the script operation.

```
itemNode = item.getRootEntryNode(); nodes =
itemNode.getEntryNodes("/SpecForMigTest/Multi"); out.writeln(nodes);
```

Behavior in V11.3.0.

1. V11.3.0 does not return children.

getEntryNodeParent()

Behavior in V5.3.2.

1. V5.3.2 returns the actual parents.

```
itemNode = item.getRootEntryNode(); node =
itemNode.getEntryNodes("/SpecForMigTest/Multi#0/Sub-Multi#0");
out.writeln("Node:: " + node[0].getEntryNodePath());
out.writeln("Node Parents:: "
+ node[0].getEntryNodeParent().getEntryNodePath());
```

Output:

```
Node:: SpecForMigTest/Multi/Sub-Multi Node Parents:: SpecForMigTest/Multi
```

Behavior in V11.3.0.

1. V11.3.0 returns the group node instead of actual parent.

```
itemNode = item.getRootEntryNode(); node =
itemNode.getEntryNodes("/SpecForMigTest/Multi#0/Sub-Multi#0");
out.writeln("Node:: " + node[0].getEntryNodePath());
out.writeln("Node Parents:: "
+ node[0].getEntryNodeParent().getEntryNodePath());
```

Output:

```
Node:: SpecForMigTest/Multi/Sub-Multi Node Parents::
SpecForMigTest/Multi/Sub-Multi
```

getFlatEntryNodes()

Behavior in V5.3.2.

1. This method returns an array of flat EntryNodes of this entry.

Behavior in V11.3.0.

This method raised exceptions in earlier versions and the exceptions were caused **getEntryNodeValue** on the **entryNode** returned by **getFlatEntryNodes**. The exception is because, now with serialized form you have a new **entrynode** returned by **getFlatEntryNodes** called the *directory* node. For single attributes that are multi-occurring an extra **entrynode** is returned and its **node::type** is *STRING* or whatever the attribute type is. The script attempts to get the value and report it. So, a fix is provided in Version 5.3.2 wherein after **getFlatEntryNodes** returns the nodes, a new method **getEntryNodeType()** checks its type. If the type happens to be *V*, only then the entry node is processed. Here is the prototype of the method:

```
<prototype>
  <![CDATA[String EntryNode::getEntryNodeType()]]&gt;
</prototype>
<description>
  <![CDATA[return "V" = value, "G" = Grouping or top level of spec directory,
  "M" = Multi-directory (contains multiple occurrences of values or groupings)]]&gt;
</description>
```

The following is an example of the implementation.

```
ctg1 = getCtgByName( "<catalog name>" );
itm1 = ctg1.getCtgItemByPrimarykey( "<primary key of item>" );
ents1 = itm1.getFlatEntryNodes();
```

```

for( i=0; i<ents1.size(); i++ )
{
    var val1 = "----";
    var ent1 = ents1[i];

    var ePath1 = ent1.getEntryNodeExactPath();
    out.write( ePath1 + " " );

    var type1 = ent1.getEntryNodeType();
    out.write( type1 + " " );

    if( type1 == "V" )
    {
        val1 = "" + ent1.getEntryNodeValue();
    }
    else
    {
        val1 = "" + ent1.getEntryNodeChildren().size();
    }
    out.writeIn( val1 );
}

```

setTypeToExport(String sObjectType)

Behavior in V5.3.2.

- COLLABORATION_AREA_CONTENT is an acceptable value for sObjectType

Behavior in V11.3.0.

- COLLABORATION_AREA_CONTENT is removed from the list of acceptable values for sObjectType

addObjectByNameToExport(String sEntityName[, String sObjectType, [String sActionMode]])

Behavior in V5.3.2.

- COLLABORATION_AREA_CONTENT is an acceptable value for sObjectType

Behavior in V11.3.0.

- COLLABORATION_AREA_CONTENT is removed from the list of acceptable values for sObjectType

addAllObjectsToExport([String sObjectType, [String sActionMode]])

Behavior in V5.3.2.

- COLLABORATION_AREA_CONTENT is an acceptable value for sObjectType

Behavior in V11.3.0.

- COLLABORATION_AREA_CONTENT is removed from the list of acceptable values for sObjectType

Changes in script operations behavior from V6.0.0 and V11.3.0

The following list provides the changes in behavior for script operations that exist in IBM InfoSphere Master Data Management Collaboration Server V6.0.0 and V11.3.0 Scripting Libraries.

exportEnv ()

Behavior in V6.0.0.

- Exports the InfoSphere MDM Collaboration Server objects that are specified in envObjList at the specified docstore path. The *sDocFilePath* variable contains the path of the compressed file that is exported into the document store. This method returns the log as a string.

Behavior in V11.3.0.

- Exports the InfoSphere MDM Collaboration Server objects that are specified in envObjList at the specified docstore path. The *sDocFilePath* variable contains the path of the compressed file that is exported into the document store. If *sDocFilePath* is given as `file:///` followed by the

path on the file system, the compressed file is exported directly to the file system and not to the docstore. The optional parameter *sMapFilePath* is the path of the name mapping file on the file system, which provides the object to file name mappings for the objects that are being exported. This method returns the log as a string.

Java API differences between various versions

The base version that is used for the Java API in IBM InfoSphere Master Data Management Collaboration Server Version 11.3 is WebSphere Product Center Version 5.3.2.

Java API methods and enums

The following list provides the new methods and enums added to interfaces that exist in both IBM InfoSphere MDM Server for PIM V6.0.0, Fix Pack 5, V9.1.0 and IBM InfoSphere Master Data Management Collaboration Server V10.0.

AttributeDefinition.java

enum: `AttributeDefinition.Type`: `RICH_TEXT` and `EXTERNAL_CONTENT_REFERENCE` added

method: `public int getId()`

AttributeDefinitionProperty.java

enum `AttributeDefinitionProperty.Name`: `GROUP` and `LOCALE_NODE` deprecated

enum `AttributeDefinitionProperty.Name`: `RICH_TEXT` added

AttributeInstance.java

method: `public void setValueUsingJSON(Object value)`

AttributeOwner.java

method: `public AttributeInstance getAttributeInstance(int[] nodeIdArray, int[] indexArray, boolean bFollowInheritance, boolean createOccurrencesIfNeeded)`

Item.java

method: `public OrderedJSONObject toJSON(boolean includeAttributeType)`

method: `public void addStatusAndAvailability(OrderedJSONObject itemJSONObj)`

Catalog.java

method: `public PIMCollection<Item> getItems(int[] itemIds)`

method: `public PIMCollection<Item> getItems(Object[] itemIds)`

method: `public void setIgnoreCache(boolean ignoreCache)`

method: `public boolean getIgnoreCache()`

method: `public boolean isCached()`

method: `public void setCached(boolean setCached)`

method: `public OrderedJSONObject toJSON()`

CatalogManager.java

method: `public Catalog getCatalog(String catalogName, boolean returnItem)`

method: `public Catalog getCatalog(int catalogId)`

method: public Catalog getCatalog(int catalogId, boolean returnItem)

CategoryCollaborationArea.java

method: public CollaborationCategory createCollaborationCategory()

CollaborationCategory.java

enum: CollaborationCategory.SaveResult

method: public SaveResult getSaveResult()

method: public Collection<SecondarySpec> getItemSecondarySpecs()

method: public OrderedJSONObject toJSON(boolean includeAttributeType)

method: public void addStatusAndAvailability(OrderedJSONObject

collaborationCategoryJSONObject)

method: public void addItemSecondarySpec(SecondarySpec spec, Collection<Catalog> catalogs, boolean addToChildCategories, boolean addAcrossMapping)

method: public void addSecondarySpec(SecondarySpec spec)

method: public void removeItemSecondarySpec(SecondarySpec spec)

CollaborationItem.java

method: public OrderedJSONObject toJSON(boolean includeAttributeType)

method: public void addStatusAndAvailability(OrderedJSONObject collaborationItemJSONObject)

CollaborationStep.java

method: public CollaborationObject getCollaborationObject(int id)

enum ValidationError.Type

These methods are added: TOTAL_DIGITS, MIN_EXCLUSIVE, MIN_INCLUSIVE, MAX_EXCLUSIVE, MAX_INCLUSIVE

Context.java

method: SearchQuery createSearchQuery(String queryString, Collection<Item> items, Catalog catalog)

method: public String setSavepoint()

method: void rollbackToSavepoint(String name)

method: public SearchHelper getSearchHelper()

method: public HistoryManager getHistoryManager()

method: public MessageBundle getMessageBundle()

method: public MessageBundle getMessageBundle(Locale locale)

method: void disableAllAccessChecking()

method: void enableAllAccessChecking()

Category.java

enum: Category.SaveResult

method: public Collection<String[]> getFullDisplayPaths()

method: public Collection<Integer> getSecondarySpecIdsForChildren()

method: public OrderedJSONObject toJSON(boolean includeAttributeType)

method: public void addStatusAndAvailability(OrderedJSONObject categoryJSONObj)
method: public View getDefaultView()

Hierarchy.java

method: public Category createCategory()
method: public PIMCollection<Category> getCategories(int[] categoryIds)
method: public PIMCollection<Category> getCategories(Object[] categoryIds)
method: public OrderedJSONObject toJSON()

HierarchyManager.java

method: public Hierarchy getHierarchy(int hierarchyId)

OrganizationManager.java

method: public OrganizationHierarchy getOrganizationHierarchy(int id)

SearchQuery.java

enum SearchQuery.ColumnType : LOGENTRY added enum:
SearchQuery.SearchQueryOp

SearchResultSet.java

method: public UserDefinedLogEntry getUserDefinedLogEntry(int columnIndex) throws PIMSearchException

SelectionManager.java

method: public Selection getSelection(int selectionId)

Spec.java

method: public AttributeDefinition getAttributeDefinition(int attributeDefinitionId)

SpecManager.java

method: public Spec getSpec(int specId)

EnvironmentExporter.java

method: public String export(ExportList exportList, String documentPath, String mappingPath)

method: public String export(ExportList exportList, String documentPath, boolean checkForRequisites)

checkForRequisites, String mappingPath)

method: public String exportAll(String documentPath, String mappingPath)

SavedSearch.java

method: public boolean isShared()
method: public void setShared(boolean isShared)
method: public int getCreatorId()

SearchHelper.java

method: public SavedSearch createSearchTemplate(Catalog catalog, int creatorId, String name, boolean isShared)

method: public SavedSearch createSearchTemplate(Hierarchy hierarchy, int creatorId, String name, boolean isShared)


```

method: public SavedSearch
createSearchTemplate(OrganizationHierarchy orgHierarchy, int
creatorId, String name, boolean isShared)

method: public SavedSearch createSearchTemplate(CollaborationArea
collaborationArea, CollaborationStep step, int creatorId, String
name, boolean isShared)

method: public SavedSearch getSavedSearch(String name, int
creatorId)

method: public SavedSearch getAccessibleSearchTemplate(String name)

method: public Collection<SavedSearch>getSearchTemplates(Filter
filter)

method: public SavedSearch getPrivateDefaultSearchTemplate(PIMObject
pimObj)

method: public SavedSearch getPrivateDefaultSearchTemplate(PIMObject
pimObj, int userId)

method: public SavedSearch getSharedDefaultSearchTemplate(PIMObject
pimObj)

```

UIHelper.java

```

method: void openEntriesInCollaborationAreaStep(CollaborationStep
collaborationStep, String additionalPredicates, HttpServletRequest
request, HttpServletResponse response)

```

LeftPaneDataObject.java

```

method: public int getPrimaryHierarchyId()

```

New Java API interfaces

The following list provides the new interfaces that are introduced in IBM InfoSphere MDM Server for PIM V9.1.0 and IBM InfoSphere Master Data Management Collaboration Server V10.0.

- Filter
- PIMObject
- HistoryManager
- CMSContentURN
- CMSInstance
- CMSManager
- AuthorizationHelper
- SavedSearch
- SearchHelper
- LeftPaneDataObject
- LeftPaneDataObjectFactory
- RichTextEditor
- MessageBundle
- PackagingTool

Tuning your database

You must tune your database by increasing the heap size setting if the database server that is being used is IBM DB2,

Before you begin

Before you can tune your DB2 database, you must log in as the DB2 administrator.

Procedure

1. Run the following commands to increase the heap size setting.

```
db2 update database configuration for database <dbname> using applheapsz 8192
db2 update database configuration for database
  <dbname> using app_ctl_heap_sz 8192
db2 update database configuration for database <dbname> using LOGFILSIZ 4000
```

Where *dbname* is the actual name of the DB2 database instance. You can find the current values of these parameters with the following commands:

```
db2 get dbm cfg
db2 get db cfg for <dbname>
```

2. Run the following commands to maintain log conditions.

```
update db config for <dbname> using logprimary 10;
update db config for <dbname> using logsecond 20;
```

Note: The previous numbers in DB2 commands are indicative only. You must get the correct parameter values for your environment from your DBA.

Chapter 5. Troubleshooting

You can use the recommended solutions to resolve common migration issues.

Troubleshooting migration scripts

You need to compile migration scripts before you can view them in the script console of IBM InfoSphere Master Data Management Collaboration Server, and run them. You can also use InfoSphere MDM Collaboration Server facilities to troubleshoot your scripts.

Running compiled migration scripts

You need to modify the `common.properties` file before you use compiled scripts.

To use compiled scripts, make sure that the `common.properties` file in the `$TOP/etc/default` directory has the following setting:

```
script_execution_mode = compiled_only
```

You can disable script compilation for individual scripts by including the following directive at the beginning of the script:

```
script_execution_mode=not_compiled
```

However, disabling script compilation at the script level is not ideal because it leads to significant performance degradation. To avoid performance degradation when you use non-compiled scripts, change your server that is set to *not_compiled* rather than using the option of disabling compilation at the script level.

If the server setting in the `common.properties` file is set to *not_compiled*, then the script compilation for individual scripts cannot be enabled with the script level directives.

Note: Using a combination of compiled and non-compiled scripts degrade performance, and it is not ideal. However, if you must use this combination, there is a limitation: a non-compiled script can start functions in a compiled script, but a compiled script cannot start a function in a non-compiled script.

Common script compilation errors

When you work with compiled scripts, a script can be saved in the script console only if it compiles correctly. If there is an error, check `svc.out` in the `appsvr` logs directory for the full `javac` output and error message.

The following are some common compilation errors:

1. A break or return statement inside a `forEach*Element()` block does not compile due to an "unreachable code" error. To fix this issue:

```
forEachItemSetElement(itemSet, item)
{
    return item;
}
```

Change it to:

```
forEachItemSetElement(itemSet, item)
```

```

{
if (item != null)
{
    return item;
}
}

```

This code is equivalent, but satisfies the compiler.

2. If you return a value from a function, you need to return a value in every case. In other words, this code does not compile:

```

function sample() {
var e = null;
catchError (e) {
// do something...
return "a string";
} if (e != null) {
reportError(...);
}
}

```

Since it does not return a value, if an exception happens in the `catchError` block. You need to change it.

```

function sample() {
var e = null;
catchError (e) {
// do something...

return "a string";
}
if (e != null) {
reportError(...);
}
return null;
}

```

3. For major compilation issues, you can look at the generated Java files. These generated Java files are in a directory that is specified by parameter `tmp_dir` in `common.properties`. The Java file naming convention is recently changed to include the script name and a generated sequence, for example: `MyScript12345.java`.
4. Additionally, the full path of the script from the docstore is placed as a comment at the top of each generated Java file. If you are mapping the docstore to the file system, you can run a recursive `grep` command to find out which Java file matches a script.

Common runtime errors and problems

There are known issues that you might encounter when you are running scripts. These examples illustrate some of those known issues and provide some insights on avoiding or resolving them.

Invalid argument type:

An invalid argument type occurs when you are passing the wrong type of argument to a function (for example, a `HashMap` when it requires a `String`). You can also receive an invalid argument type when IBM InfoSphere Master Data Management Collaboration Server cannot infer the type correctly. To resolve this issue, you might need to use a script operation such as `checkString()` to make the type explicit.

Mismatched argument types in comparisons:

If the same data type, such as `==`, `>`, `<`, `<=`, does not appear on both sides of a conditional operator, the expression evaluates to false. If false, this does not result in an error message, but the corresponding code does not run.

For example, the following does not work.

```
var id = "12345" ;
var my_id = item.getEntryAttrib(path to some attribute that is a sequence) ;
if ( id == my_id ) {
  // statements that need to be executed but won't be
}
```

The solution in this case is to explicitly use:

```
var id = "12345" ;
var my_id = checkString(item.getEntryAttrib("//some attribute that is a sequence"),"") ;
if ( id == my_id ) {
  // statements to be executed
}
```

XML parsing:

The following code works in non-compiled mode and even in compiled mode when run from the script sandbox:

```
new XmlDocument(xmlDoc) ;
forEachXmlNode("item") {
  // do the needful
}
```

However, in compiled mode, if this code is used in a script library function that is started by multiple users, then the statements inside the `forEachXmlNode` block do not get run. There is no error message, however, you can use the following code as a workaround.

```
var doc = new new XmlDocument(xmlDoc) ;
var xmlNode ; forEachXmlNode(doc, "item", xmlNode) {
  //do the needful
}
```

Resolve runtime errors and problems

To resolve run time errors on the appserver, refer to the file `svc.out` in the `appsvr` log directory. Sometimes, examining the `exception.log` and the `default.log` might be helpful.

With the new generated Java file naming convention, it is easy to identify which script failed. The error message also identifies the line number in the generated Java file. To resolve the problem, view the generated Java file and scroll to the line where the runtime error occurred. The generated Java code now includes actual script code as comments every few lines.

For example, consider the following portion of code from a sample generated Java file

```
// function checkIfPartyPartyTypeExist(party, partyType)
public static Object ScriptFunction__checkIfPartyPartyTypeExist(HashMap hmContext, Object party, Object
partyType) throws Exception
{
  // var bRet = false;
  Object bRet = (java.lang.Boolean) Boolean.FALSE; //
  var rootEntry = party.getRootEntryNode();
  Object rootEntry = GenGetRootEntryNodeOperation.execute(hmContext , (IEntry) party);
  // var entryNodes = rootEntry.getEntryNodes(getCatalogSpecName() + "/Party Types/Party Type Code");
  Object entryNodes = GenGetEntryNodesOperation.execute(hmContext , (EntryNode) rootEntry, (String)
  BinaryOperation.execute(BinaryOperation.PLUS, ScriptFunction__getCatalogSpecName(hmContext), "/Party
  Types/Party Type Code"));
  // var entryNodesSize = entryNodes.size();
  Object entryNodesSize = (java.lang.Integer) GenSizeOperation.execute(hmContext , (HashMap) entryNodes);
```

Each of the lines that begin with `//` in the comments previous are actual code from the corresponding IBM InfoSphere Master Data Management Collaboration Server script. This indication makes it easy to identify where failure occurred in the script.

Troubleshooting migration issues

Describes some common issues for troubleshooting that might come up during migration in IBM InfoSphere Master Data Management Collaboration Server.

Issue: Exporting access control groups

When you migrate to InfoSphere MDM Collaboration Server, you might see the following error that is related to exporting access control groups and roles:

AccessControlGroups

```
Exporting ACG and Roles for company: trigo 7/4/13 6:27 AM
STARTED:Export 7/4/13 6:27
AM STARTED:Export of AccessControlGroups 7/4/13 6:27 AM
INFO:Skipping export of [Default] 7/4/13 6:27 AM
FAILED:Export of AccessControlGroups
```

This error means that there was a failure in exporting the access control group (ACG). Check the logs under the \$TOP/logs/default directory to find out the reason for the failure.

Issue: GDS migration questions are case-sensitive

All the GDS access control group migrations before InfoSphere MDM Collaboration Server version 9.1.0-FP011 are case-sensitive and y or n should be entered in lowercase. Before InfoSphere MDM Collaboration Server version 9.1.0-FP12 migrations, an uppercase Y or N should be used for GDS migration questions.

Issue: Missing indexes

When you migrate to InfoSphere MDM Collaboration Server, you might see missing indexes in the migration console report.

The following errors that are related to missing indexes might occur during migrating:

Missing indexes on the SCA table

```
Missing Indexes
=====
| SCA_0_PK SCA_CATEGORY_IDSCA_SELECTION_IDSCA_COMPANY_IDSCA_
| CATALOG_IDSCA_CAT_TREE_ID
```

You can run this PERL script to resolve this issue. Choose directory db2 or oracle appropriately.

```
perl $PERL5LIB/runSQL.pl --sql_file=$TOP/src/db/schema
/dbscripts/<db2 or oracle>/sca_pk.sql
```

Missing indexes on the DBV table

```
Missing Indexes
=====
| DBV_0_UK DBV_VERSION
```

You can run this PERL script to resolve this issue. Choose directory db2 or oracle appropriately.

```
perl $PERL5LIB/runSQL.pl --sql_file=$TOP/src/db/schema
/gen/<db2 or oracle>/ddl_ver_synchronize.sql
. $TOP/bin/compat.sh
$JAVA_RT com.ibm.ccd.synchronize.DBSchemaVersion --autoupd
```

Missing indexes on the DOA and CTG tables (DB2 only)

```
Missing Indexes
|=====
|  CTG_1_UK CTG_COMPANY_IDCTG_NAME
|  DOA_0_UK DOA_DOC_IDDOA_CMP_IDDOA_NAME
```

You can run this PERL script to resolve this issue:

```
perl $PERL5LIB/runSQL.pl
--sql_command="alter table tctg_ctg_catalog drop constraint ctg_1_uk ;"
perl $PERL5LIB/runSQL.pl
--sql_command="drop index ictg_ctg_2;"

perl $PERL5LIB/runSQL.pl
--sql_command="alter table tctg_ctg_catalog
add constraint ctg_1_uk unique (ctg_company_id, ctg_name);"

perl $PERL5LIB/runSQL.pl
--sql_command="create index ictg_ctg_2 on
tctg_ctg_catalog ( ctg_name, ctg_company_id)
ALLOW REVERSE SCANS;"

perl $PERL5LIB/runSQL.pl
--sql_command="alter table TDOC_DOA_DOC_ATTRIBUTES
drop constraint doa_0_uk ;"

perl $PERL5LIB/runSQL.pl
--sql_command="drop index idoc_doa_0;"

perl $PERL5LIB/runSQL.pl
--sql_command="alter table tdoc_doa_doc_attributes
add constraint doa_0_uk unique (doa_doc_id, doa_cmp_id, doa_name);"

perl $PERL5LIB/runSQL.pl
--sql_command="create index idoc_doa_0
on tdoc_doa_doc_attributes ( doa_name, doa_doc_id, doa_cmp_id)
ALLOW REVERSE SCANS;"
```

Issue: Missing tables ITX and CAX

When you migrate to InfoSphere MDM Collaboration Server, you might see this error in the DB verification report:

```
Missing Tables
|=====
|  TCTG_CAX_CATEGORY_CONTENT
|  TCTG_ITX_ITEM_CONTENT

Missing Indexes|
|  CAX_0_PK CAX_ENTRY_IDCAX_NEXT_VERSION_ID
|  ITX_0_PK ITX_ENTRY_IDITX_NEXT_VERSION_ID
```

This error indicates a problem with table space creation, XDB installation, or **db** parameters. Check in the `errfile.log` file in the `$TOP/logs` directory for the exact message. Ensure that database setup is done correctly and then run the migration script again.

Issue: Insufficient privileges error

When you run a migration script for migrating to InfoSphere MDM Collaboration Server, you might see an Insufficient privileges error in the console. Typical examples of the error are

Oracle database

When you use an Oracle database, the error might look like this error:

```
create index icnt_eem_2 on tcnt_eem_entry_entry_map (  
*  
)
```

```
ERROR at line 1:  
ORA-01031: insufficient privileges
```

DB2 database

When you use a DB2 database, the error might look like this error:

```
SQL0551N "USERNAME" does not have the privilege to perform operation  
"CREATE INDEX" on object "USERNAME.TWFL_WFE_WORKFLOW_EVENT".  
SQLSTATE=42501
```

The database user does not have enough privileges to create an index in the database. You must grant "create index" privilege to the database user and then run the migration script again. You must also grant access to the user to be able to create and modify tables.

Issue: Migration script failure

When you run a migration script for migrating to InfoSphere MDM Collaboration Server, the script might fail. A typical scenario of script failure is

Failure in module data_maintenance_reports

```
-----  
Summary of the migration  
-----
```

```
Migration of the following modules failed:  
data_maintenance_reports
```

The \$TOP/logs/errfile.log file contains the following content:

```
net.sf.ehcache.distribution.  
MulticastKeepaliveHeartbeatReceiver$MulticastReceiverThreadrun  
SEVERE: Multicast receiver thread caught throwable. Cause was null. Continuing...
```

There is an issue with the cache configuration parameters, but the migration script ran and completed successfully. Check your cache configuration parameters. There is no need to rerun the migration script.

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Contacting IBM

You can contact IBM for customer support, software services, product information, and general information. You also can provide feedback to IBM about products and documentation.

The following table lists resources for customer support, software services, training, and product and solutions information.

Table 7. IBM resources

Resource	Description and location
Product documentation for InfoSphere MDM	You can search and browse across all the InfoSphere MDM documents at http://pic.dhe.ibm.com/infocenter/mdm/v11r0/index.jsp .
Product documentation for InfoSphere MDM Custom Domain Hub, including InfoSphere MDM Reference Data Management	You can search and browse across all the InfoSphere MDM Custom Domain Hub documents at http://pic.dhe.ibm.com/infocenter/mih/v11r0/index.jsp .
IBM Support Portal	You can customize support information by choosing the products and the topics that interest you at www.ibm.com/support/ .
Software services	You can find information about software, IT, and business consulting services, on the solutions site at www.ibm.com/businesssolutions/ .
My IBM	You can manage links to IBM web sites and information that meet your specific technical support needs by creating an account on the My IBM site at www.ibm.com/account/ .
Training and certification	You can learn about technical training and education services designed for individuals, companies, and public organizations to acquire, maintain, and optimize their IT skills at www.ibm.com/software/sw-training/ .
IBM representatives	You can contact an IBM representative to learn about solutions at www.ibm.com/connect/ibm/us/en/ .

Providing feedback

The following table describes how to provide feedback to IBM about products and product documentation.

Table 8. Providing feedback to IBM

Type of feedback	Action
Product feedback	You can provide general product feedback through the Consumability Survey at www.ibm.com/software/ucd/consumability/ .

Table 8. Providing feedback to IBM (continued)

Type of feedback	Action
Documentation feedback	<p>To comment on the information center, click the Feedback link on the top right side of any topic in the information center. You can also send comments about PDF file books, the information center, or any other documentation in the following ways:</p> <ul style="list-style-type: none">• Online reader comment form: www.ibm.com/software/data/rcf/• E-mail: comments@us.ibm.com



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